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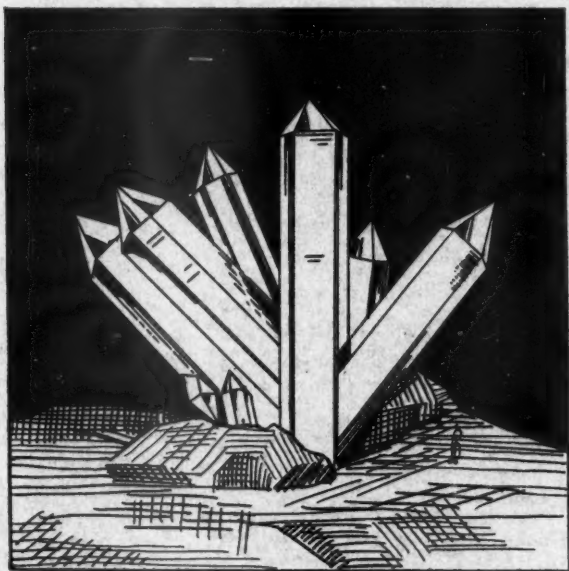
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VOL. 9, NO. 1

WHOLE NO. 31

ROCKS AND MINERALS

A MAGAZINE FOR MINERALOGIST, GEOLOGIST & COLLECTOR



OFFICIAL JOURNAL OF
THE ROCKS AND MINERALS ASSOCIATION

PUBLISHED MONTHLY



JANUARY 1934

THE BULLETIN BOARD

Special Fluorescence Number of Rocks and Minerals

It has been suggested to the Editor to publish a "Special Fluorescence Number" of "ROCKS and MINERALS" in the summer or fall of this year. In view of the now general interest among collectors in the fluorescence and phosphorescence of minerals, such a number should be both timely and interesting. In order to lessen the task of publication, Mr. E. Mitchell Gunnell, 576 North Broad Street, Galesburg, Illinois, has been appointed Special Editor of this number, and all contributions and other correspondence relative to it should be sent direct to him. Readers of the Magazine are respectfully requested to submit articles for the issue, but are asked to write the Special Editor a brief description of what they intend writing about before writing their articles in order to avoid repetition of material with its consequent necessity of refusal of some. Short articles noting original observations of fluorescent minerals, are especially desired, as are notes on apparatus and the technic employed in handling such apparatus. In order that the approximate line-up of articles to appear in the special number be determined at an early date, contributors are asked to communicate with the Special Editor at once.

As a special inducement to junior collectors, Mr. John M. Greiger of 405 Ninita Parkway, Pasadena, California, is offering a prize for the best paper by an amateur collector under 18 years of age on the subject of "The Practical Application of Fluorescence." The prize consists of a set of fluorescent minerals having a retail value of \$10.00, besides which the winner's article will be published in the Special Fluorescence Number. Papers should not be more than 800 words in length, and should be sent direct to the Special Editor.

PETER ZODAC, Editor.

NEW ADVERTISING RATES FOR THE MONTHLY

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Half page	7.00	Back cover	20.00
Quarter page	4.00	Classified Ads	2c a word
One inch	1.25	Prof. Directory	7.00 a year

Forms for the February issue will close January 15th.

WANTED: Correspondents in all parts of the world who will be kind enough to send us notes and news items on minerals, that they think may be interesting to the subscribers of ROCKS and MINERALS. Such as are available we shall be very glad to print in the magazine.

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ROCKS and MINERALS

A MAGAZINE FOR MINERALOGIST, GEOLOGIST
AND COLLECTOR

PUBLISHED MONTHLY ... FOUNDED 1926

VOLUME 9, No. 1



Whole Number 31

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ROCKS AND MINERALS

PEEKSKILL, N. Y., U. S. A.

The Official Journal of the Rocks and Minerals Association

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MARCH 1, 1934

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ROCKS and MINERALS

Edited and Published by Peter Zodac

PUBLISHED
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JANUARY
1934

The Official Journal
of the
Rocks and Minerals
Association

Kettling In Canada ~ By MRS. A. N. GODDARD

630 Virginia Park, Detroit, Mich



Most of the men afoot that bright October day were hunting something livelier than kettles.¹ Our only gun was our eyes, bent on finding one of the fast disappearing "kettles" at Kettle Point, thirty-five miles east of Sarnia, Ontario. There our directions were, "Follow the Blue Water Highway as far as the Indian Church, then turn west two miles."

That was correct as far as the two miles went, but brought us only back to the Lake Huron shore. Before us lay the wide level expanse of shale beach, which is slowly rising with the warping of the earth's surface. As far as eye could see lay the glacial boulders dropped there long ago by the melting of the glacial ice sheet. Our guests were bent on leaving forthwith to find which of those boulders were kettles, but we knew that the pickings were better farther on. We followed the shore road north another two miles, with a fringe of autumn tinted trees between us and the lake, whose gentle whitecaps were visible beyond the shale and boulders. At our right were gorgeous woods broken by the clearings of Indian farms, sometimes with a log cabin and sometimes a tidy modern cottage.

When the road climbed the rise to the picnic ground at the Point, we scrambled down the ragged shale bluff for fifteen or twenty feet, and peered eagerly at granite, dark jasper, and sandstone boulders, torn from the volcanic ridges around Lake Superior. Nor was our search in vain. While we found none of portable size, we found

several too heavy to move which had been broken open by searchers long ago. The signs were very clear. The spherical shape, the inner crystalline structure, the glistening fracture of the slender dark grey crystals of siderite, a carbonate of iron. It is a clay-mixed ironstone of concretionary form. In some of the largest kettles there was a hard clay-like center, then a concentric layer of rock grading from shale to mineral, then a six or eight inch layer of mineral crystals always radiating out from the center. The surface of the kettle looks like coarse sand paper, composed as it is of the jagged ends of the crystals covered by a film of dried clay.

These large boulders are usually spherical on top and two-thirds of the way down, but below that they are indented and weather-worn by wave and frost, showing plainly when the white caps of Lake Huron lapped and froze around their bases.

But where were the perfect ones? Where were ours to carry home? Let the Indians and farmers answer that. Let the geologists answer, who for decades have haunted Kettle Point; and the tourists who never cease to picnic there; and the summer visitors at Ipperwash Beach, just around in the lee of the Point. The Indians outline their driveways with them, perfect blackish balls a foot in diameter. The Canadian farmers for miles around decorate gate posts and door steps with them. The geologists tote them away with difficulty, and the picnickers break them up if they can.

At lunch time we drove way out on the flat shale of the sunny shore, and appropriated an old fireplace between two neighborly boulders. A wobbly driftwood log was our bench. The fitful breezes blew smoke and ashes hither and yon, but the sandwiches and coffee were food for the gods. Thus deified, our spirits rose. We WOULD find a kettle.

A Girl Scout Leader was the first to succeed, and she soon taught us the technique. The shore sometimes consists only of bare, flat, slate-like sheets of shale, checked off in rectangles by cleavage lines. Otherwise it is covered by thin rectangles of broken bits. This was our best hunting ground. By walking slowly with downcast eyes we could detect little bulges in the laminae of the rock, or inch-size grey marbles lifting their edges. Some of these little kettles still wore a belt of shale like a ring of Saturn. Others were weathered clean. We found them as small as a quarter of an inch in diameter. When scratched with a file they glistened, not like siderite, but with a brassy sheen. Here was another story, and we found ourselves collecting not baby siderites as we expected, but marcasites, a sulphide of iron. It too forms concretions in sedimentary rocks.

We found hollows on the shore where big kettles had been lifted out of the nest, and left a circle of distorted slate-like fragments erect around the hollow. We found one large kettle with the shale covering still curving over it. There was one about two feet in diameter half weathered out of the bluff under the picnic ground. The color is no different from the ground mass, but the shape and hardness are distinctive.

Sometimes these formations have been regarded as meteoric, but they have no sign of the pitted exterior of meteors. Probably they were formed in situ by chemical action, just as other crystals gather themselves together. The shale is bent under them, as it might be under a meteor, but it is also bent over them. Around a kettle it may stand in many directions, brokenly erect, but sometimes these tangled erections, five or six feet across, have no apparent center. What happened there?

We were reminded of the mud boils on the Lake Erie shore near Dunkirk, N. Y. But there are differences. The mud boils are frequently cracked on top in six nearly equal segments, a pentagon in the center with five divisions around it formed by cracks that run outward from the corners of the pentagon. That never appears on a siderite kettle. The mud boils are somewhat oblate, and seem to form the backbone of each resistant point of land that runs out into Lake Erie in that locality. At Kettle Point the concretions show no such alinement. If there are many still buried, as there probably are, they may be the reason for the existence of Kettle Point.

When we had each found our handful of little marcasites, we remembered the setting sun and the hundred miles to go. Hastily gathering our fragments of broken kettles, our rock garden mementoes, our Petosky stones (broken bits of fossilized honey-comb coral from the limestones of northern Michigan) we continued our way east around the point. Four miles along the hard sands of Ipperwash Beach, past the camping ground and the cottages, locked and boarded against the winter storms, brought us to the only exit through the parallel sand dunes that border the beach with their little swamps between them. Back on the Blue Water highway we passed miles of summer cottages hidden in the woods along the southern shore of Lake Huron.

In Sarnia we retrieved our auto certificates from the customs office, ferried across the St. Clair River while its pale grey-green tide reflected the sunset. Assuring the immigration officers that we were born in the United States and lived in Michigan, and convincing the customs officers that we were bringing in nothing but rocks, we sped back over the perfect new ribbon of concrete that connects Port Huron and Detroit. Rest assured, there is nothing that makes a customs officer so sure you are feeble minded as to bring across the River a little quarry on the floor of your car.

1. A kettle is a clay ironstone concretion—Editor.

1933-1934

January Bulletin ~ First Year Program

Mineralogy Club Movement for the Youths of the Secondary Schools of America*

We are very happy to announce that the success of this very worthy activity, being sponsored by ROCKS and MINERALS Magazine, now seems fully assured. While it was not expected that the growth at the beginning would be phenomenal, we are well satisfied that the whole plan is getting off to an auspicious start. All good ROCKS and MINERALS scouts may aid us greatly by climbing into the 'band wagon' and boosting for live Clubs in their own communities. Let us hear from you soon. Why not begin the New Year right by making up your mind to become a local Club Sponsor and organizing a club for the young people of your town?

Up to the present time clubs have been organized, or are in the process of organization, in the following far flung places. May we not have the pleasure of adding your name to this list next month?

There are also a number of Junior Clubs already in existence, some of which have been functioning for some time and are doing splendid work. We should like very much to have a list of every such club, located anywhere in the United States or Canada, so that we can communicate with the sponsors of these Clubs, as we would like to send them some of the forms and outlines which are to be prepared from time to time. If any of our readers know of such a club we will greatly appreciate the favor, if they will send us the name and address of the Sponsor, and any other information which they think might be of interest about the club.

Following our original plan we are publishing herewith the Program Outline for the ninth and tenth meetings of the Clubs, for the work of the first year.

State	City	Sponsor
California	Long Beach	Capt. H. E. Mitchell
California	Needles	Mr. J. C. McCorkle
California	Pasadena	Mr. R. S. Williams
Connecticut	Stamford	Mr. Samuel C. Brown
Illinois	Joliet	Mr. Ben Hur Wilson
Illinois	Roanoke	Mr. T. P. Pettigrew
Massachusetts	Haydenville	Mr. Edward C. Foster
Massachusetts	Lexington	Mrs. Frank Sheldon
New York	Peekskill	Mr. Peter Zodac
New York	Rockville Centre	Mr. H. Stillwell
Ohio	Akron	Mr. C. M. Schnabel
Ohio	Youngstown	Mr. Edward W. Monroe
Oregon	Portland	Miss Daisy L. Larson
Pennsylvania	Waynesboro	Mr. Robert G. Martin
South Dakota	Webster	Mr. Sigurd Anderson
Wisconsin	Merrill	Mr. L. W. Klitzke

(Note:—Some of these Clubs are being organized on the local basis, expecting to affiliate with the National Organization at some later time).

**Program Outline: Continued from the
December Issue
The Ninth Club Meeting
Local Program: Visit to Industrial
Plant**

This trip should be carried out in accordance with the prearranged plans made by the committees appointed at the Eighth Meeting of the Club. Each member should be encouraged to take along a memorandum book for the purpose of making notes on the facts gathered at the plant. These notes should be written up and elaborated upon in the permanent note book later. Some of the data which may be ascertained is as follows:

- 1.—Nature and identity of the raw material (mineral substance) used.
- 2.—Source and natural distribution of the raw material.
- 3.—Type of the mining operation or other methods employed in obtaining it from nature.
- 4.—Method of transporting the raw materials from source to the industrial plant.
- 5.—The manufacturing processes involved in transforming the material into some useful product or object.
- 6.—Various uses to which the manufactured product is put.
- 7.—Markets and methods of marketing the manufactured product.

Much information concerning many of these items may easily be added to the Note book material by looking up appropriate references in encyclopedias, text books, and magazine articles. (Consult index in the Public or School Libraries. Your librarian will gladly help you). Remember, a good note book is a valuable and necessary adjunct to every worthwhile mineral collection. Representative specimens of such material as is used should also be obtained while on the trip, and as many stages of the manufacturing process as is possible should be shown in your collection.

**The Tenth Club Meeting
National Program: Business Meeting
and Study Hour**

Program. Part I. Business Meeting

This part of the meeting should follow closely the order previously given for the business section of the meeting. (Also see By-laws). A rather full report should be given of the trip made on the preceeding meeting, for

the benefit of those present who were unable to go on the trip. A chance should be given for discussion of the facts learned on this trip, in order to improve the notes, or clear up any difficulties in the way of understanding fully the manufacturing process used at the plant visited. Committees should be appointed for the eleventh meeting of the club which should be the second 'exchange and social hour meeting' of the club year. One committee should be appointed to arrange for the rules of the exchange and another for the games (involving minerals) and other social activities.

**Part II. The Study Hour
Program Subject:—The Igneous Rocks**

1. Remarks by the sponsor. (A brief explanation of the subject of the program would be in order).
2. Reading of article of interest to mineralogists. Topic, "Volcanoes and Vulcaunism." (This may be selected from any good textbook on geology, physiography, or an encyclopedia).
3. Reading of paper prepared by member. Subject, "Methods of Classification for Igneous Rocks." (Award Paper. National Unified Program Topic).
4. Demonstration by sponsor or visitor. (This demonstration should be upon the identification of the igneous rocks, and their common constituent minerals. The members should learn to pick out the quartz, mica, feldspar and hornblende minerals at sight. The identification of the other accessory minerals may well be left for later work).
5. A general discussion of the points brought out in the program and answering Question Box Querries.

Adjournment.

* * * * *

Program Outlines to be continued in the February number. For additional aids and advice upon the conduct of Programs please write, Mr. Ben Hur Wilson, National Director,

Program Building and Research,
112 Mississippi Avenue, Joliet, Ill.

*Note:—Those who are unfamiliar with this movement may acquaint themselves with the various phases of the work by referring to the June, September, and the December issue of ROCKS and MINERALS for 1933.

Our Junior Club

Conducted by

ILSIEN NATHALIE GAYLORD

Dear Juniors:

All through the month still more new members have been joining our Club. We give them all a hearty welcome and are glad to share with them the good times we have in our Club meetings. From a Girl Scout Troop of Buffalo, New York, come five Scouts to join our lessons and win prizes for their collections.

From Granville, Massachusetts, come more Girl Scouts who are just beginning to study rocks and minerals. We welcome you all! Besides, the more members we have the more fun it will be to see who will win the very highest prize each month in the Question Box.

Nice letters have come, too, from different members. Margaret Dudziak writes that her Girl Scout friends are delighted with her Club pin, and are eager for theirs to come, too. Another Girl Scout says that it is such fun to answer the Question Box questions, she can hardly wait for more of them to come next month.

Paul Zimmer, 2221 Maplewood Avenue, Toledo, Ohio, has a number of Brachiopods and other fossils, if any of the Club members are interested in them.

Victor Crowley, South Dakota, says his friends have found some beautiful rose quartz near there, and are making all sorts of ornaments of it.

David Wheeler, Vermont, besides being delighted to have the specimen of pitchstone for his Question Box prize, says he has found asbestos, talc, actinolite, quartz crystals, and iron in the mountains there.

It is great fun finding specimens for one's collection, and we hope all the members are making a good start on their collections in this way. Be sure, if possible, to gather extra specimens of any kinds that are really good, so as to have them for exchange with other Club members who find specimens that do not occur in your vicinity.

Please let the Club know when you want to exchange specimens with other Club members, so that a list can be sent you of exchangers.

Now a greeting to you all, and an invitation to all Juniors up to twenty-one years old to join Our Junior Club, receive the pin and pass-word, and share our study and good times. There are no dues or fees in our Club.

A STONE THAT WILL BEND

Yes, a solid piece of stone that will bend! That is what this sandstone will show us for our Club lesson today. Over here is a long narrow strip from the same piece, with the ends resting on two blocks. Just see how the strip has sagged in the center. Would you have believed that a solid stone would do that?

Now we will let the sandstone explain it to us. Long ages ago this solid stone was loose sand on some ancient shore. Constantly more sand was washing down upon it from the crumbling away of great cliffs. At last as ages passed, the first layers of sand grains were pressed together into stone. Very often lime or other mineral in the water cemented them into a solid rock.

That is, most of the sand was made into solid rock. But now and then we find some that was not so firmly cemented as the rest. It is like this piece that we have here. It seems as solid as any other rock, yet it will sag in a deep curve when cut into long thin strips. We cannot imagine granite bending like that. Flexible sandstone is the name of this queer rock. Such an interesting specimen a piece of it will make for your collection.

BLOSSOMS OF THE ROCKS

Granite, limestone, marble, slate, and sandstone. These are the great useful building stones that we have been studying here in our Club lessons.

Now let us look at some of nature's delicate and beautiful handiwork among the minerals. It is the crystals.

There is a hint of them here in this little granite rock. Some of these small particles really belong to the big family of crystals, although one would scarcely believe it, they are so stunted and formless. Crystalline grains, we call them, yet in the beginning each tiny grain started to be a perfect, beautiful crystal.

But there were so many of them all growing so fast and crowding so hard upon one another, that none of them could develop perfectly. In the cavities in the rocks, however, it was very different. Usually the crystals there had plenty of room to develop into large, beautiful specimens.

Just as the plants have many shapes and colors of blossoms, so the minerals develop crystals of many different forms and colors. Exquisitely lovely are some of these "flowers of the rocks." Quartz, for instance,—some of these little crystalline grains in our piece of granite are quartz—often develops beautiful violet-colored crystals which we call amethysts. We use them in rings and other jewelry.

Sometimes the quartz forms clear bright yellow crystals called citrine, which also makes lovely gems. Then there is the beautiful rose-colored quartz, whose crystals grew so fast and were so crowded that it ended in being just a crystalline mass. But it still kept its exquisite rose-pink tint. These and other beautiful forms of quartz make splendid specimens for your collections.

CRYSTAL FORMS

As for the forms of the crystals, they are varied too. Perfect quartz crystals have six sides with a six-sided pyramid on either end of the crystal. But not always do we find perfect crystals. Often they are in groups of different sizes. Some of the crystals in the group may be nearly perfect, others quite short or perhaps very long and thin, and all of them fastened in some mass that is a base for the whole group.

The crystals of the other minerals are also of many different shapes. Some are like flat plates, others are cubes. Some are nearly as long and thin as hairs, and others are eight-

sided, or triangular, or one of the many other forms that crystals assume. Really, there is almost no end to the shapes of crystals. In time here in our Club lessons we will learn, not only how crystals are made, but how to recognize many of these beautiful blossoms of the minerals.

THE QUESTION BOX

- 1.—What are the most perfectly formed crystals in the world, and why are they so perfect?
- 2.—What are the most abundant crystals on earth?
- 3.—What is the crystal form of water?
- 4.—What metal tells us how hot or cold we are?
- 5.—What common crystals do we eat with our food?
- 6.—What mineral in a crystallized form do we hold before our eyes so that we can see better?

PRIZES

A first class prize will be given for the correct answers to all the questions.

A second class prize will be given for the correct answers to any four of the questions.

A third class prize will be given for the correct answers to any three of the questions.

The questions are graded so as to include the older Juniors and the newest beginners. Send your answers by February 15, to Junior Club, Rocks and Minerals, Peekskill, New York. The names of the January prize winners will be given in April. Some nice prizes are waiting for the fortunate winners.

SEPTEMBER PRIZES

In the September Club lessons we learned in the article "The First Stone On Earth," that the upper crust of our big world is made mainly of granite. Below that is a layer of hot, relatively soft volcanic glass. The first Question Box question asked what rock was most important to man?

The answer should be, granite. Were it not for the firm granite crust on our earth, man could not live here at all. You can see how we could not live on hot volcanic glass, had that been the top layer of the earth. Thus it is to this steady, firm granite rock that we

owe our chance to live here at all. So that makes it to man the most important of all the rocks.

The next most necessary rock is limestone. A hint of this answer was in the article, "A Stone That Was Once Alive." Limestone was made of the shells of tiny sea creatures. As these small sea folk died their shells sank to the ocean floor, and as ages passed formed great beds of limestone. The shells of the sea creatures are their skeletons, worn on the outside of their bodies. Man wears his on the inside of his body. Our skeletons are also made of lime. Were it not for our bony framework we would be soft, spineless creatures—not man at all. So limestone is the next most necessary rock to man.

Miss Ruth Schuh, of the Oak Tree Troop of Girl Scouts, Lexington, Massachusetts, has sent the correct answers to all the September questions. Since Club members from all over the United States have sent answers, this is a fine record for Miss Schuh. Her prize is a geode.

On the outside a geode looks like an ordinary rough pebble. But when cracked open, its hollow heart is seen to be lined with little sparkling crystals. This one looks like a small frosted cave. They are beautiful

specimens, and we are to study all about them in one of our Club lessons.

Paul Zimmer, of Ohio, sent four splendid answers to the September questions. His prize was quartz crystals. He had wanted certain ones for his collection.

David Wheeler, of Vermont, also sent fine answers to four of the questions. A specimen of pitchstone was his prize. He wrote that he had always wanted some pitchstone for his collection. Fortunately there was a good piece of it in our box of prizes, so it went to David.

Margaret Dudziak, of New York, sent some excellent answers to four of the September questions, and for a prize won a specimen of blue-green chrysocolla from a mine in Nevada.

Edward Styer, of New York, gave very good answers to three of the September questions, and his prize is a stone that will float on water.

When sending your answers to the Question Box, please state what kind of a specimen of rock or mineral you would like to receive if you should win a prize. If such specimens are among those in the box of prizes we will be glad to send the ones you especially want. We are always glad to do all we can to help you with your collections.

Comment and Criticism

To the Editor of "R. & M.":

Have you ever had anyone approach you with the idea of getting up a standard catalog on mineral specimens? As you no doubt know every successful hobby has a listing of the collectable items with fair established prices. I sincerely believe that the one thing which holds back mineral collecting is the lack of such a catalog.

A catalog of this nature would be a great aid to every collector. It would greatly encourage swapping as it could be done on a more scientific basis and with a feeling of a fair exchange. Such a catalog, however, would be difficult to prepare but with the aid of mineral collectors throughout the world it could be done.

A group of collectors in every important locality could meet for the purpose of pricing specimens in their respective locality. These men would have to be seasoned collectors who understand the value of specimens. A list of minerals and their prices could be sent you for insertion in ROCKS and MINERALS and if enough items were obtained they could be published in book form.

I would appreciate comments from all readers.

JOHN M. GRIEGER,
Dec. 4, 1933. 405 Ninita Parkway,
Pasadena, Calif.

(Continued on Page 11)

The Amateur Lapidary

Conducted by J. H. HOWARD*

504 Crescent Ave., Greenville, S. C.

Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all.

*Author of—*The Working of Semi-Precious Stones*. A practical guide-book written in non-technical language for those who desire to cut and polish semi-precious stones.

THE VALUE OF FLAWS

By

HARRY E. MCNELLY

We usually expect to find beauty in perfection. Yet we are forced to realize with something of a shock that the majority of gems, if perfect, that is if chemically pure and flawless would be indistinguishable one from another except by careful tests. If we think for a moment we will see that most of our gems owe their beauty to flaws or variations in structure or to impurity of composition.

Gem materials are separated into two general classes. The idiochromatic gems are those few whose color is an inherent property of the material. In this class are malachite, azurite, chrysocolla, pyrite, hematite, etc. The allochromatic minerals are colorless or white when pure and this class includes nearly all the gem materials. Those that we use as gems are often colored by pigments. These may be chemical impurities or inclusions of mineral of another color.

For convenience these flaws and variations of which we have been speaking may be classified as: (1) inclusions; (2) irregularities in structure, either chemical or physical, or both; (3) impurities in the chemical composition; (4) mixtures of two or more contrasting gem materials, or gem in its matrix.

Inclusion type of gems are exemplified by rutilated quartz, sunstone, aventurine quartz, moss agate, chialtolite and quartz cat's eye.

Irregularities in structure are shown in gems such as opal, malachite, agate,

moonstone, labradorite, etc. while irregularities in composition are shown in tourmaline, malachite, agate, etc.

Chemical impurities in a gem mineral frequently give it some distinctive color for which it is often highly prized. Notable examples of this are: Corundum which occurs in red, blue, green, yellow, purple and brown. Beryl is sometimes colored pink, pale blue, blue green, green and yellow. Tourmaline has a wide range of colors including green, pink, yellow, brown and violet. Jade, naturally white, is often yellow, orange, red, brown, lilac, blue, blue green, green, olive green or black.

Gems of two or more materials or gems in matrix are very common. As witness, opal in matrix, turquoise in matrix, gold in quartz, malachite and azurite, lapis lazuli with pyrite, bloodstone, emerald in matrix etc.

It is interesting to note that the diamond is one stone that, in general, is most valuable when perfectly pure. Though this is not strictly true as the most valuable diamonds are of the blue, green and red colors. However, this condition does not effect commerce as stones of these colors are so rare that they are seldom on the market. The commercial first water stones of the most valuable grade are blue white. This color can be distinguished by comparing with a white sapphire. The brown diamonds and most of the yellows are considered "off color" and are less valuable.

Perhaps the most valuable gems that owe their beauty to structural flaws or inclusions are the star ruby, star sapphire, alexandrite, cat's eye and the opal. The star ruby and the star sapphire, when examined under the microscope, show innumerable minute negative crystals (crystal shaped cavities) with an occasional bubble present in the cavity denoting they often contain liquid. These crystal cavities are all perpendicular to the major axis and apparently perpendicular to one of the three hexagonal axes. Reflections from them give the star.

The variations in silica in the forms of quartz, agate, jasper and opal are too numerous to mention in an article of this kind.

One purpose of this paper is to call

to the attention of the amateur lapidary that having these facts in mind it is often possible to so cut a flawed stone that the faults actually beautify and add to the attractiveness of the gem instead of spoiling it.

Banded tourmaline can be cut so that the two ends of the stone are of different colors. Amethyst can also be treated this way. An unusual inclusion can sometimes be "framed" by centering it in a large flat table, letting the side facets act as the frame. Also a gem may be bordered with matrix, or matrix bordered with gem material.

Considering gem material from this viewpoint, sometimes really beautiful, exotic and interesting gems can be cut from what appears to be, at first glance, only "junk."



Club and Society Notes

PHILADELPHIA MINERALOGICAL SOCIETY

A Field Trip sponsored by the Society was made to the "Verdolite" Quarry on the River Road above Easton, Penn., November 5th. The party numbered 43. Specimens of the following minerals were obtained at this quarry:

"Verdolite," semi-precious serpentine, asbestos, calcite crystals, pyrite, aragonite, blue serpentine, molybdenite, carnotite, eastonite, thorianite, massive pink calcite, talc, enstatite, and zircon.

This is the first step of an ambitious program being developed by Dr. Joseph L. Gillson, newly elected President of the Society. There are 72 Senior and 40 Junior paid members and the Society is enjoying unprecedented activity.

W. H. FLACK, Secretary.

SHIPPENSBURG ROCKS AND MINERALS CLUB

In August 1933, a group of young men of Shippensburg, Penn. met in the Junior High School building and organized the Shippensburg Rocks and Minerals Club for the purpose of studying rocks, minerals, fossils and the geological formations in their section. The following officers were elected: President, Edwin W. Ryder; Vice-President, Leroy H. Saxe, Jr.; Secretary, Julius H. Hoke; and Treasurer, William D. Tiley, Jr. The Board of Governors selected includes M. L. Beistle, William D. Tiley, Jr., and Prof. S. S. Shearer. Mr. Beistle is the sponsor of the Club.

Meetings will be held monthly on the last Thursday of each month, with special meetings during the summer. The membership dues have been fixed at \$1.00 a year. All of the members of the Club, including the Board of Governors, are also members of the Rocks and Minerals Association.

Editor's Note—Two fine pictures taken at the quarry were submitted but lack of space prevents their publication.

JOLIET CHAPTER, "ROCKS AND MINERALS ASSOCIATION"

A group of Rocks and Minerals enthusiasts, numbering about fifty adult members, have organized in Joliet, Illinois, under the above caption, for the purpose of attending a series of winter lectures, upon various mineralogical topics, to be given bi-monthly by Mr. Frank L. Fleener, professor of geology in the Joliet Junior College.

This group is operating as a semi-formal Club, Mr. Ben Hur Wilson acting as group chairman, and Miss Alvena Murr, as Secretary. The membership is composed of people of all walks of life. Business and professional men and women are well represented along with industrialists and chemical engineers, who are interested in minerals largely from their economic standpoint, as there are quite a number of plants located in Joliet depending directly upon minerals for their major supply of raw materials.

The Chapter, through Mr. Wilson, is also sponsoring a live Mineralogy Club, operating under the "National Charter" plan, in the Joliet township high school. This club meets every two weeks and has a membership limited to twenty high school students. It is entirely independent of the adult section and these younger people are very much interested in their club work, being eager to learn all they can about the various phases of rock and mineral study and identification. Many of them are starting collections of their own.

NEWARK MINERALOGICAL SOCIETY

The 139th regular monthly meeting at the 18th annual meeting of the Society was held on November 5th in the Newark Technical School, 367 High Street, Newark, N. J., with a good attendance of members and guests.

The President, Louis Reamer, presided. At the close of the business session of the 139th meeting, the 18th annual meeting was started with the readings of the annual report of the Secretary, Herbert L. Thowless and of the Treasurer, Herman M. Lehman.

The following officers were unanimously re-elected to serve until the November meeting 1934:

President, Louis Reamer, of Orange, N. J.

Vice-President, Ernest A. Maynard, of Jamaica, Long Island.

Secretary, Herbert L. Thowless, of Newark, N. J.

Treasurer, Herman M. Lehman, of New Haven, Conn.

The Board of Trustees consists of the following officers and members—Louis Reamer, Ernest A. Maynard, Herbert L. Thowless, Herman M. Lehman, Leonard A. Morgan, John A. Grenzig, Paul Walther.

The program for the meeting consisted of a Symposium on Metals in which William H. Broadwell, John A. Grenzig, Paul Walther, Ernest A. Maynard, John Reiner and the President spoke and exhibited various metals.

The 140th meeting will be on December 3, 1933. The program will consist "Preparation and Examination of Microscopic Mounts."

Eighteenth Annual Report of the Secretary

Newark, N. J., November 5, 1933.

To the Members of the
Newark Mineralogical Society.
Ladies and Gentlemen:

The Eighteenth Annual Report of the Secretary of the Newark Mineralogical Society is presented, covering the fiscal year beginning November 1, 1932 and ending October 31, 1933.

1.—Membership

On the roll, November 1, 1932 65
Admitted to membership during
the year 7

Total 72

Lost to roll during the year:
Resigned 1
Died 1

Total lost to the roll 2

On the roll October 31, 1933 70

2.—Officers and Trustees

At the annual election on November 6, 1932 the following officers and trustees were chosen:

President—Louis Reamer of Orange, N. J.

Vice-President—Ernest A. Maynard of Jamaica, Long Island.

Secretary—Herbert L. Thowless of Newark, N. J.

Treasurer—Herman M. Lehman of New Haven, Conn.

To complete the Board of Trustees, Mr. Leonard A. Morgan was elected for one year.

The Board of Trustees as constituted by the By-laws consists of:

Louis Reamer, President, term ends November 1933.

Ernest A. Maynard, Vice-President, term ends November 1933.

Herbert L. Thowless, Secretary, term ends November 1933.

Herman M. Lehman, Treasurer, term ends November 1933.

Leonard A. Morgan, term ends November 1933.

John A. Grenzig, term ends November 1933.

Paul Walther, term ends November 1934.

3.—Committee

The President appointed the following Committees:

Membership—Herbert L. Thowless Chairman; George E. Carpenter, Paul Walther, Richard P. Milburn.

Program—Leonard A. Morgan.

Publicity—Herbert L. Thowless.

Outings—All members of the Society.

4.—Meetings and Programs

During the past fiscal year the society has held eight regular monthly meetings, with programs, and a brief account of each meeting is given.

131st meeting, November 6, 1932. Annual election of officers and trustees. Program, "The Inspection of Minerals under the Microscope." Microscopes furnished by Mr. Broadwell, Mr. Grenzig, Mr. Reamer and Mr. Walther.

132nd meeting, December 4, 1932. Program consisted of a "Symposium on Geodes." The Secretary exhibited the Newark Geode. Other exhibitors were Mr. Broadwell, Mr. Maynard and the President.

133rd meeting, January 8, 1933. The program consisted of an illustrated talk by Dr. Horace R. Blank on "Observations in New York City's New Water Supply."

134th meeting, February 5, 1933. The program consisted of a talk by Dr. Albert C. Hawkins on "Some Interesting Minerals of New Jersey," illustrated with many fine specimens.

135th meeting, March 5, 1933. The program for the afternoon comprised a Round Table Talk on the Minerals of California. Specimens were shown by the President, Mr. Broadwell, Mr. Grenzig, Mr. Milburn and Mr. Giordano.

136th meeting, April 2, 1933. The afternoon was devoted to an illustrated talk by Dr. L. S. Wills, of Philadelphia, on "The Preparation of Micro Mounts."

137th meeting, May 7, 1933. The program comprised of a fine talk by Mr. Joseph F. Burke on the "Minerals of Staten Island." Mr. Ashby, Mr. Broadwell, Mr. Grenzig and others exhibited specimens.

138th meeting, October 1, 1933. The subject for the meeting was a "Symposium on Summer Collecting" in which Mr. Maynard, Mr. Grenzig, the President and other members participated.

5.—Outdoor Trip

Under the leadership of Mr. Joseph Sternberg, Chairman of the Outing Committee, the members enjoyed a field trip to South River, N. J., on Sunday, June 4, 1933.

6.—Miscellaneous

The question of new quarters in which to meet must be seriously considered. We are gradually being crowded out of our present room on account of the space being required for the Newark Technical School.

An increase in our membership is essential to the continued welfare of the Society. If each member would bring in one name during the year, we would be in good shape for some time.

Respectfully submitted,

HERBERT L. THOWLESS,
Secretary.

COMMENT AND CRITICISM (Continued from Page 7)

To the Editor of "R. & M.":

I suggest that ROCKS and MINERALS print a series of articles on "lost mines." This is a subject that has always fascinated me and I believe other readers may share a similar interest. The articles should not be

colored nor exaggerated in any way but should be written in a simple, non-technical manner and as true to facts as it is possible to make them.

CHARLES F. GARDINEER, Jr.,
Dec. 16, 1933. 201 S. Division St.,
Peekskill, N. Y.

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